



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 17, 2014

LICENSEE: Pacific Gas and Electric Company

FACILITY: Diablo Canyon Power Plant, Unit Nos. 1 and 2

SUBJECT: SUMMARY OF MAY 21, 2014, TELECONFERENCE MEETING WITH PACIFIC GAS AND ELECTRIC COMPANY ON DIGITAL REPLACEMENT OF THE PROCESS PROTECTION SYSTEM PORTION OF THE REACTOR TRIP SYSTEM AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM AT DIABLO CANYON POWER PLANT, UNIT NOS. 1 AND 2 (TAC NOS. ME7522 AND ME7523)

On May 21, 2014, a Category 1 teleconference public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Pacific Gas and Electric Company (PG&E, the licensee) at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The purpose of the teleconference meeting was to discuss the license amendment request (LAR) submitted by PG&E on October 26, 2011, for the Digital Replacement of the Process Protection System Portion of the Reactor Trip System and Engineered Safety Features Actuation System at Diablo Canyon Power Plant, Unit Nos. 1 and 2 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML113070457). A list of attendees is provided in Enclosure 1.

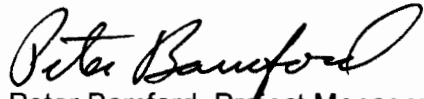
The teleconference meeting is one in a series of publicly noticed meetings that is being held periodically to discuss issues associated with the NRC staff's LAR review. Selected open items that are being tracked for this review were discussed during the teleconference meeting. A complete list of the current open items is provided in Enclosure 2.

Highlights from this meeting on May 21, 2014, include the following:

- The open item summary listing was discussed and the current version is provided with this meeting summary as Enclosure 2.

One member of the public was in attendance for the teleconference meeting and no public meeting feedback forms were submitted.

Please direct any inquiries to me at 301-415-2833 or at Peter.Bamford@nrc.gov.



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Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

Enclosures:

1. List of Attendees
2. Open Items Listing

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LIST OF ATTENDEES
MAY 21, 2014, TELECONFERENCE MEETING WITH
PACIFIC GAS AND ELECTRIC COMPANY
DIGITAL UPGRADE FOR DIABLO CANYON POWER PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-275 AND 50-323

<u>NAME</u>	<u>ORGANIZATION</u>
K. Schrader	Pacific Gas and Electric
A. Wilson	Pacific Gas and Electric
J. Hefler	Altran
E. Quinn	Altran
W. Odess-Gillet	Westinghouse
A. Breneman	Westinghouse
T. Tuite	Westinghouse
D. Head	Invensys
Rich Stattel	Nuclear Regulatory Commission (NRC)
Samir Darbali	NRC
Rossnyev Alvarado	NRC
Shiattin Makor	NRC
Jennie Rankin	NRC
Gordon Cleifton	Nuclear Energy Institute

Enclosure 2
Open Item Summary Table

No	Src/RI	Issue Description	P&GE response:	Status	RAI No. (Date Sent)	RAI Response (Due Date)	Comments
93	RJS	<p>(ALS Audit Item)</p> <p>The RTM for the ALS subsystem was prepared using Westinghouse document WNA-DS-02442 to trace PG&E requirements. The IV&V team found that Westinghouse document WNA-DS-02442 does not capture all PG&E requirements (see descriptions for Tickets #4787 and #4800). Please provide a description of how this issue is being resolved.</p>	<p>PG&E Response: The 6116-00000 Diablo ALS Management Plan, revision 4, specifies an updated document structure that has all PG&E Customer Requirements feeding directly into the 6116-00011, which will flow down into all ALS Diablo sub-ordinate requirement and design specifications. Westinghouse document WNA-DS-02442 has been removed from the document hierarchy. 6116-00000, revision 4, 6116-00011, revision 1, and the 6116-00059 RTM, revision 0, are all reflective of this new document structure. Documents 6116-00011, revision 1, was submitted under PGE Letter DCL-13-087 dated September 17, 2013. The next revision of the 6116-00059 RTM, Revision 1, will include traceability to the Core FPGA Design Specifications, and will be submitted prior to the ALS audit.</p>	Open			<p>4/16/14 – <u>Updated RTM to be made available prior to ALS audit.</u></p> <p>12/12/13 – RJS Current version of 6116-00059 on sharepoint is “0.” This does not establish traceability to the Core FPGA Design Specifications.</p> <p>10/16/13 – RJS New RTM still does not establish traceability to the 6116-10203, and 6116-10204 Core FPGA Design Specifications.</p> <p>Also A new revision of 6116-00059 will need to be docketed due to the significance of changes made since the original document was submitted.</p> <p>6116-00011, ALS SDS, revision 1</p>

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							<p>6116-00059 ALS RTM, revision 0</p> <p>They are both available in the Sharepoint.</p> <p>SDS Rev. 0 is already on docket. [ML11277A152]</p> <p>RTM to be submitted on Docket.</p>
94	RJS	<p>The ALS Topical Report Plant Specific Action Items will be made available to Westinghouse. When these are available, PG&E should prepare a document to identify how each applicable PSAI is being addressed for the PPS project. This document should include references to the LAR and supporting documents where PSAI's are addressed.</p>	<p>PG&E Response: The response to the ALS ASAs requires input from Westinghouse and a contract has been created to supply the required information. The response to the ASAs, except 4, 5, 6, 8, 10, 20, and 22, will be submitted by March 24, 2014. The response for PSAIs 4, 5, 6, 8, 10, 20, and 22 will be submitted by August 30, 2014.</p>	Open	RAI 59	4/30/14	<p>5/16/14 Hold this open until all ASAI's are addressed.</p> <p>4/16/14 – RAI response will only be partial. 16 of 23 PSAI's will be addressed. 7 will be deferred by 90 days. Waiting for input from WH on additional testing.</p> <p>12/12/13 – RJS A version of the ALS TR / SE is now available and being reviewed.</p>

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101	RJS	<p>Phase 2 Environmental Qualification Documentation:</p> <p>Per ISG 6 Section D.5.1, the NRC staff needs to review the information provided to determine if the PPS equipment has been demonstrated to be able to operate within the specified environment. In order to do this the staff needs to have plant specific environmental data for the plant and specifically for the cable spreading room. The ISG 6 matrix (item 2.12) states that this information has been provided in the two vendor topical reports, however, these reports do not contain any plant specific data.</p> <p>The NRC requires plant specific environmental condition data for normal operating conditions and the worst conditions expected during abnormal and accident conditions where the PPS equipment is expected to perform its safety function.</p> <ul style="list-style-type: none"> • Range of temperature and humidity conditions that are expected in the cable spreading room. • Seismic data for the Diablo Canyon OBE and SSE earthquakes including frequencies and acceleration values. • EMI / RFI data for areas where PPS equipment is to be installed. <p>The FRS section does specify the ranges of temp and humidity but for seismic environment, it refers to documents DCM C-17, DCM C-25, DCM C-30, DCM C-28, and DCM T-10.</p> <p><i>Note: The required information may also be contained in the UFSAR. The staff is reviewing design basis information in the UFSAR, however specific environmental conditions applicable to the PPS equipment remain unclear to the staff.</i></p> <p>3/28/14 Update: Integrated Equipment Response Spectra(IERS): In the seismic test report, it is stated the IERS spectra will change as a result of the equipment</p>		Open	RAI 61	4/30/14	<p>Hold OPEN until final qualification documents are received.</p> <p>12/11/13 – RJS Seismic Reports posted on sharepoint. Further plant specific information including ping tests of PPS cabinets is still needed for evaluation.</p> <p>11/1/13 – RJS Waiting for additional testing to be completed.</p> <p>PG&E to provide estimate of completion for next call.</p> <p>6/26/2013: during this call the following clarifications were provided: - Describe specific conditions for the room where the system will be installed. - Is there any</p>

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		<p>modifications. So far, the evaluation is based on comparing the ALS and Tricon test data (TRS) with the RRS derived from the 140' elevation spectra provided in DCM No. C-25. I think that these RRS spectra will be conservative in comparison to the IERS but I will need to confirm this once I see the revised IERS.</p> <p>See follow-up questions and answers in the PG&E response below.</p>	<p>PG&E Response: PG&E provided seismic information in the document titled "Westinghouse Seismic Test Report EQLR-224B, Rev. 1" on the Sharepoint on 12/3/13. Additional testing is required for the PPS cabinets to be used that is expected to be completed in May 2014.</p> <p>3/28/14 Update:</p> <p>Based on Patrick Huang's response:</p> <p>1) IEEE 344-1975, Section 3.5.3, states that If equipment damping is not known, a value of 5 percent is recommended. Therefore use 5% damping.</p> <p>Based on the following criteria:</p> <p>2) IEEE 344-1975, Section 6.6.3.1, states that the TRS envelops the RRS over a frequency range which includes all natural frequencies of the equipment up to 33 Hz. The guidance has been more specifically addressed in IEEE 344-1987 (Endorsed by NRC RG 1.100 Rev. 2), Section 7.6.3.1.10 that it can be shown by a resonance search that no resonance response phenomena exist below 5Hz, it is required to envelop the RRS only down to 3.5 Hz. Excitation must continue to be maintained in the 1 Hz to 3.5 Hz range to the capability of the test facility.</p> <p>3) According to Draft NTS Report No TR62987-07N-SEI, Revision 0 (Reference 8.9 of Draft TRICON v10 Nuclear Qualification Project ,</p>				<p>restrictive requirement for this room? - What is the relationship between the system specification requirement and environmental conditions?</p>

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		<p>Seismic Test Report 9600164-526, Date 04/13/07) Section 6.8, Resonance Survey Results shows that the ETP or Chassis has no resonance occurred below 40 Hz. The TRS did not envelop RRS below 3 Hz meet the above IEEE 344-1975 as well as IEEE 344-1987 criteria. Therefore, Tricon seismic test response are acceptable.</p> <p>Based on 2) and 3) above, it can be justified that the Tricon test report is acceptable for the qualification of PCS racks.</p> <p>The PCS racks are identical to the PPS racks and are in the same location/elevation. Since there are no natural frequencies below 5Hz, you only need to envelop down to 3.5Hz. The resonance survey showed that the natural frequencies were all greater than 40Hz. So the TRS below 3.5Hz does not matter.</p> <p>Response to follow-up questions:</p> <ul style="list-style-type: none"> • Will you be submitting a revised EQLR-224B with the new IERS or do you plan to submit the IERS information via some other document? <p>No, EQLR-224B is Westinghouse proprietary. We cannot revise their report. We will generate IERS at ALS mounting location to compare with TRS from the EQLR-224B. The new IERS will be documented in the DCPP seismic calculation.</p> <ul style="list-style-type: none"> • Also, the EQLR-224B document is specific to the ALS, so will there be a similar seismic test report for the Tricon? <p>Yes, Tricon has seismic test report for ETP and chassis per IEEE 344.</p>					

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		<ul style="list-style-type: none"> Will there be a different set of IERS for ALS and Tricon or can the same set of spectra be applied to both subsystems? 	<p>Yes, the ALS and Tricon are mounted in the different PPS racks, the IERS are not the same. Since the ALS and Tricon have different seismic test reports, we will compare the TRS with the IERS separately.</p>				
108	RJS	<p>Phase 2 Document Status Assessment:</p> <p>The staff performed an assessment of the phase 2 document matrix and would like to discuss several items in the table. Please address comments added to the phase 2 matrix by the NRC staff.</p> <p>We recognize that some of these items will not be available until after the FAT is performed, however, there are several other phase 2 documents that should be available now. We have identified the following documents that should not require completion of the design or FAT that have not yet been submitted. We will need a revised schedule for submittal of these documents in order for us to proceed with the safety evaluation.</p> <p>VVSR's for phases of development beyond Planning/Req. (Both Vendors) Tricon 993754-1-819, Reliability Analysis Tricon 993754-1-811, Project specific platform FMEA (IEEE 352) PG&E System level FMEA Tricon 993754-1-812, Validation Test Specification (Integrated System) Tricon 993754-1-868, Software Verification Test Plan Westinghouse 6116-10020 "ALS PPS Software Safety Plan"</p>		Open	No RAI		<p>4/16/14 – NRC will provide update to Phase 2 matrix status following the next DCL submittal of Tricon documents.</p> <p>12/11/13 – RJS Tricon Reliability Analysis document is on sharepoint. Schedule for submittal of all documents still needs to be provided.</p>

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		<p>PG&E Response:</p> <p>PG&E is working with each Vendor to determine the submittal dates for the remaining Phase 2 documents not related to FAT testing that still need to be submitted. The schedule for the outstanding Invensys documents was provided on the Sharepoint on 12/17/13. A revised schedule for the outstanding ALS documents will be provided on the Sharepoint by 05/19/14.</p>					
109	RJS	<p>Audit Preparation:</p> <p>In preparation for the follow-up audits at Invensys and at Westinghouse, the staff would like to have access to the configuration status accounting documents. Can the following documents be put onto the share point site?</p> <ol style="list-style-type: none"> 1. 6116-00050, Diablo Canyon PPS Configuration Status Accounting, 2. Triconex Master Configuration List <p>PG&E Response: The 6116-00050, Diablo Canyon PPS Configuration Status Accounting was put on the Sharepoint on 12/3/13. The Tricon MCL will be placed on the Sharepoint to support the audit by 05/08/14.</p>		Open	No RAI		<p>5/16/14 Could not find the MCL on share point. When will this be available to us?</p> <p>4/16/14 – PG&E agreed to add current Tricon MCL to sharepoint to support pre-audit activities. MCL will also be available during Invensys audit.</p> <p>11/1/13 – RJS 6116-00050 to be put on sharepoint. Tricon doc will be made available prior to second audit.</p>

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115	RJS	<p>Electro Magnetic Compatibility (Tricon):</p> <p>Section 4.14 – ASAI-6 of the LAR states that the equipment vendors are required to confirm equipment compliance with physical requirements in the DCPP FRS. These requirements include the EMC requirements from Section 3.1.6 of the FRS which states: “the PPS shall be qualified by test, analysis, or a combination thereof, to function without fault or error in an electromagnetic environment in accordance with the guidance of Regulatory Guide 1.180.”</p> <p>In contrast to this, the Tricon V10 safety evaluation determined that the Tricon V10 PLC system did not fully meet the guidance of RG 1.180, Revision 1, for conducted or radiated emissions or susceptibility. As a result, the SE states: “before using the Tricon V10 system equipment in SR systems in a nuclear power plant, licensees must determine that the plant-specific EMI requirements are enveloped by the capabilities of the Tricon V10 system as approved in this SE.”</p> <p>To complete its safety evaluation, the NRC requires the licensee to provide documentation to show the DCPP specific EMI requirements to be enveloped by the Tricon V10 test levels achieved and documented in the Tricon V10 safety evaluation.</p>		New	RAI		4/16/14 - RAI will be required.

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		<p>PG&E Response: Additional electromagnetic environment testing has been performed for the Tricon that improve meeting the RG 1.180 guidance. Information on the additional testing and evaluation to the PG&E requirements will be submitted. Determination of the submittal date is in progress.</p>					
116		<p>Invensys Audit</p> <p>The Project Traceability Matrix (PTM) Rev 5 does not identify the test cases for functional verification of the requirements identified.</p>	<p>PG&E Response:</p>	NEW			
117		<p>Tricon conformance with ISG-06 position 1, point 10</p> <p>The Safety Evaluation for the Tricon platform, Section 3.7.3.1.10 STAFF POSITION 1, POINT 10, states "The application can be programmed to perform any required action on a change of the keyswitch position. However, this would be an application specific feature that is beyond the scope of this review."</p> <p>PG&E response to RAI #17 states the Operating System running on the MP application processor would monitor the position of the keyswitch, and used this parameter to allow modifications to the control program when a</p>		NEW			

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		<p>command from an external device is received. Furthermore, the response to RAI #17 implies that an application can call any of four function blocks to perform certain activities.</p> <p>The Invensys SRS identifies a requirement to indicate the position of the keyswitch. However, when this requirement is traced down to the SDD level, the requirement is only used to indicate an alarm when the keyswitch is not in the RUN position.</p> <p>Besides the alarm to indicate the keyswitch is not in the RUN position, please describe what actions are programmed in the application software on a change of the keyswitch position?</p>	<p>PG&E Response:</p>				

One member of the public was in attendance for the teleconference meeting and no public meeting feedback forms were submitted.

Please direct any inquiries to me at 301-415-2833 or at Peter.Bamford@nrc.gov.

/RA/

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Docket Nos. 50-275 and 50-323

Enclosures:

1. List of Attendees
2. Open Items Listing

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ADAMS Accession Nos. Meeting Notice ML14122A326; Meeting Summary ML14157A091

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NAME	PBamford	JBurkhardt	RStattel	MMarkley	PBamford
DATE	6/10/14	6/10/14	6/13/14	6/17/14	6/17/14

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